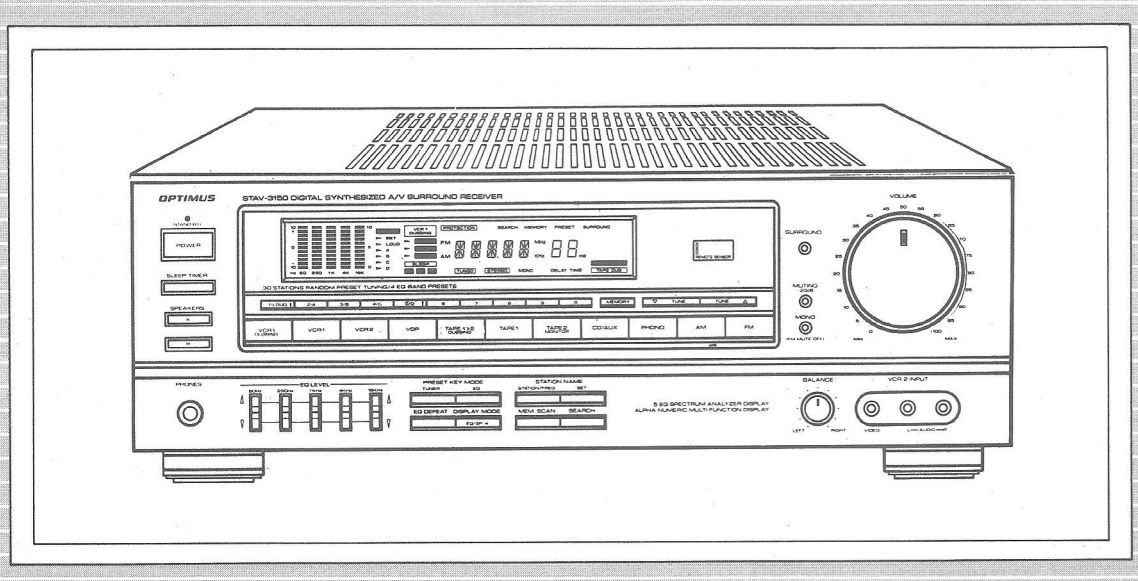
OWNER'S MANUAL

STAV-3150
DIGITAL SYNTHESIZED A/V STEREO RECEIVER

Please read before using this equipment



Cat. No. 31-3018

OPTIMUS®

THIS IS THE STAV-3150
MANUAL THAT IS ONLINE
SOMEWHERE, IT IS A RADIO
WITH A POWER LINE
ANTENNA BUILT ON IT.

NOW LOOK ON PAGE
8 YOU WILL SEE A POWER
LINE WITH A CLIP MADE OF
METAL ON THIS RECEIVER.
THAT IS A POWER LINE
ANTENNA. THE POWER LINE
FEEDS THE SIGNAL INTO THE
RADIO VIA THAT METAL
CLIP... THE AM IS INPUT
VIA ANOTHER LOOP ANTENNA.

FEATURES

Your Optimus STAV-3150 Digital Synthesized A/V Stereo Receiver combines 100 watts per channel of clean power with efficient, high-performance circuitry. This lets the receiver accurately reproduce any program source and drive almost any home speaker system. You can connect a CD player, a turntable, two cassette decks, three audio/video devices, and a video monitor to the receiver. This remarkable versatility makes the receiver a perfect control center for your home audio/video system.

Your receiver also includes the following features:

Surround Effect — enhances the speaker effect by giving you a wider, more spacious sound.

Station-Name Display — lets you set the receiver to display the names of radio stations whose frequencies you store in memory.

30 Memory Presets — let you store and recall up to 30 radio frequencies and station names in memory.

Five-Band Graphic Equalizer — lets you adjust the levels of specific frequency ranges for a customized sound, and includes a spectrum display to show you the shape of the levels you set.

Alpha-Numeric Display — shows the radio frequency, preset memory number, program source, signal strength, and other information.

Front-Panel Audio/Video Jacks — let you quickly connect a VCR, camcorder, or other audio/video device for convenient playback or dubbing.

VCR DUBBING Button — lets you copy a video cassette tape from one VCR to another.

Tape Copying — lets you copy cassette tapes for your personal use from one deck to another, even while you listen to another program source.

Digital-Synthesized Tuner — allows exceptionally precise radio tuning.

Low Distortion — ensures superb sound quality even when you use the amplifier's full power.

MONO/FM MUTE OFF Button — lets you reduce signal noise when the receiver tunes to a weak FM station.

FM Signal Overload Protection — reduces the possibility of overloading by strong local FM signals.

Protection Circuits — help prevent damage to the receiver by turning off the amplifier if it approaches being overheated or overdriven or if a power surge or short circuit occurs.

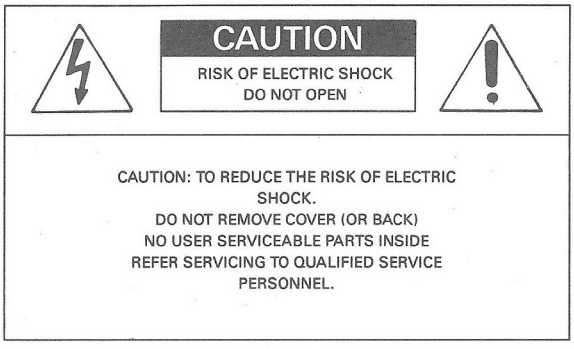
Note to the Cable TV System Installer:

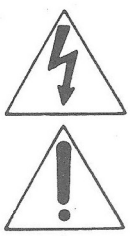
This reminder is provided to call the CATV system installer's attention to article 820-40 of the NEC (National Electrical Code) that provides guidelines for proper grounding, and in particular, specifies that the cable ground shall be connected to the grounding system of the building as close to the point of cable entry as practical.

For your permanent records, we suggest you record the receiver's serial number in the space below. The serial number is on the receiver's back panel.

Serial Number: _____

CONTENTS



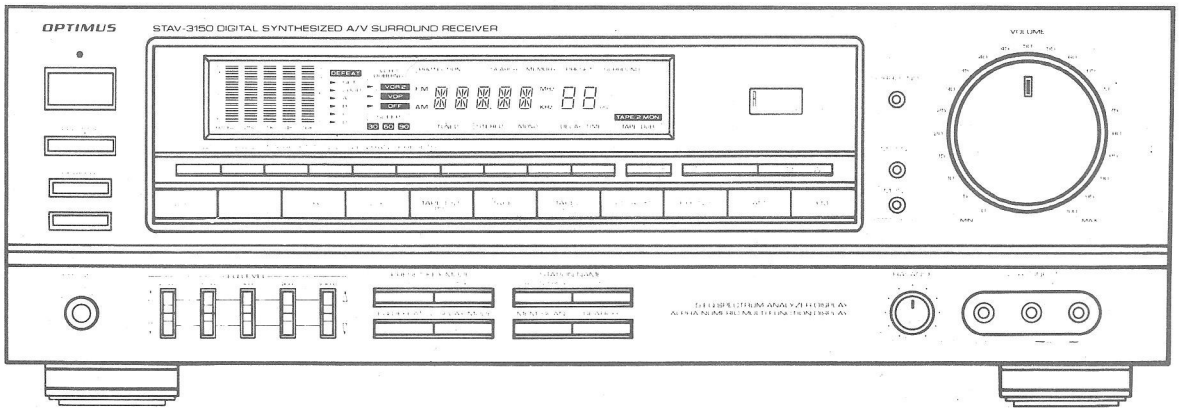


The lightning flash with arrowhead within the triangle is intended to alert the user to dangerous voltage inside this unit that can cause shock. Do not open enclosure.

The exclamation point within the triangle is intended to alert the user to important operating and maintenance instruction in this owner's manual.

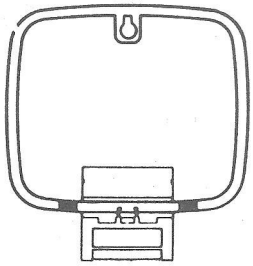
CONTROL LOCATIONS

All controls and indicators are clearly labeled and displayed on the receiver's front panel. For a detailed explanation of each control, see "Operation" and "Additional Features."



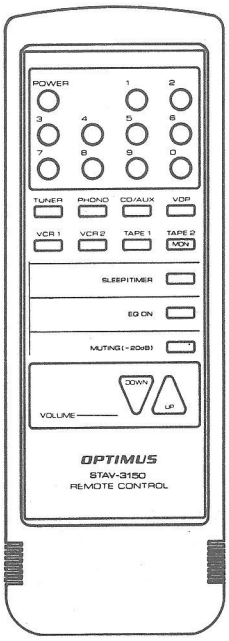
ACCESSORIES

AM Loop Antenna



Remote Control

Most of the front panel controls are duplicated on the remote control. See "Using the Remote Control" for an explanation of additional remote control functions.



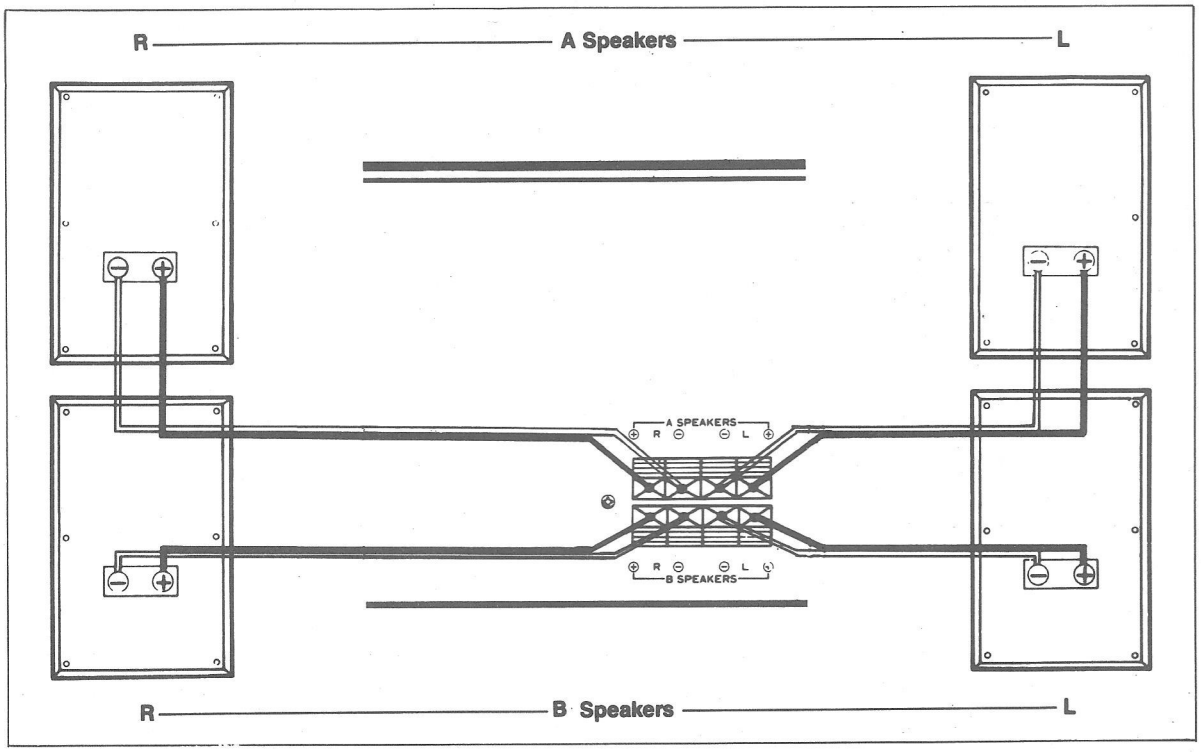
PREPARATION

Caution: Do not plug in or turn on the receiver until you make all the necessary connections.

CONNECTING SPEAKERS

Use the following guidelines before you select and connect speakers:

- If you connect only one pair of speakers to the receiver or use only one pair of speakers at a time, you can use speakers with an impedance of 4 ohms or more for the front channel.
- If you use two pairs of speakers at the same time for the front channel, all speakers must have an impedance of at least 8 ohms. If any of the four speakers you use has an impedance of less than 8 ohms, the speakers might overload the amplifier and activate the protection circuits. If this happens, the receiver automatically turns off.
- Realistic and other high-quality speakers have color-coded speaker terminals (red for positive polarity and black for negative polarity). Use these color-coded terminals as a guide to help you properly connect speakers to the receiver.

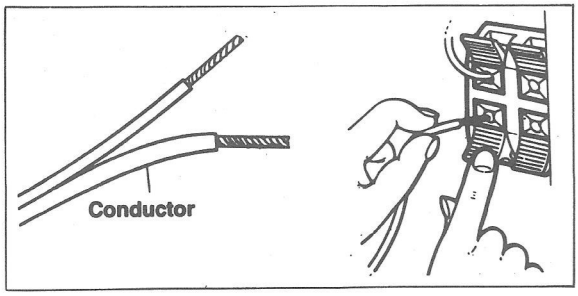


Preparing Speaker Wire

Use 16-gauge speaker wire for all speaker connections.

Speaker wire consists of two conductors (individual wires) encased in insulation and is usually color-coded or marked with a ridge along one side so that you can identify each conductor. Use these markings as a guide to help you properly connect speakers to the receiver. Consider possible speaker locations before you decide how much speaker wire you need.

1. Cut the speaker wires to the length needed to connect the speakers to the receiver.
2. Separate about 4 inches of the two conductors on each end of the speaker wire.
3. Using a wire stripper, carefully strip about 1/4 inch of insulation from the end of each conductor.



4. Twist the end of each conductor to secure any loose wires.

Connecting the A and B Speakers to the Receiver

Follow these steps to connect the A and B speakers to the receiver:

1. Press the red lever of the right positive **(+R) A SPEAKERS** terminal.
2. Insert the end of one of the conductors into the terminal's small hole and release the lever to secure the conductor.
3. Press the black lever of the right negative **(R–) A SPEAKERS** terminal.
4. Insert the end of the adjacent conductor into the terminal's small hole and release the lever to secure the conductor.
5. Connect to the right speaker's positive terminal the opposite end of the conductor you inserted into the right positive **(+R) A SPEAKERS** terminal.
6. Connect the remaining wire to the right speaker's negative terminal.

Note: For proper phasing, be sure you connect the receiver's right and left positive (+) and negative (–) terminals to the speakers' corresponding right and left positive (+) and negative (–) terminals.

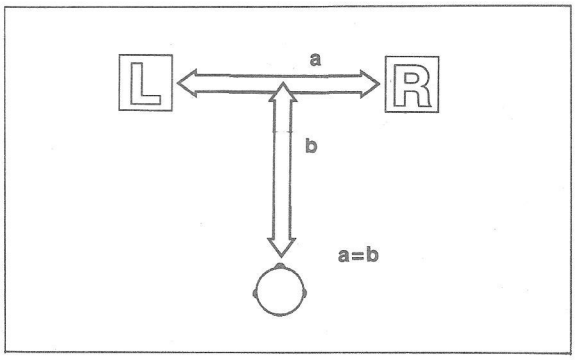
Caution: To prevent a short circuit, be sure that stray wire from one speaker terminal does not touch another speaker terminal or any other terminal on the receiver.

Repeat Steps 1-6 to connect the left speaker to the left **A SPEAKERS** terminals. Repeat the entire procedure to connect a second pair of speakers to the **B SPEAKERS** terminals if desired.

POSITIONING SPEAKERS

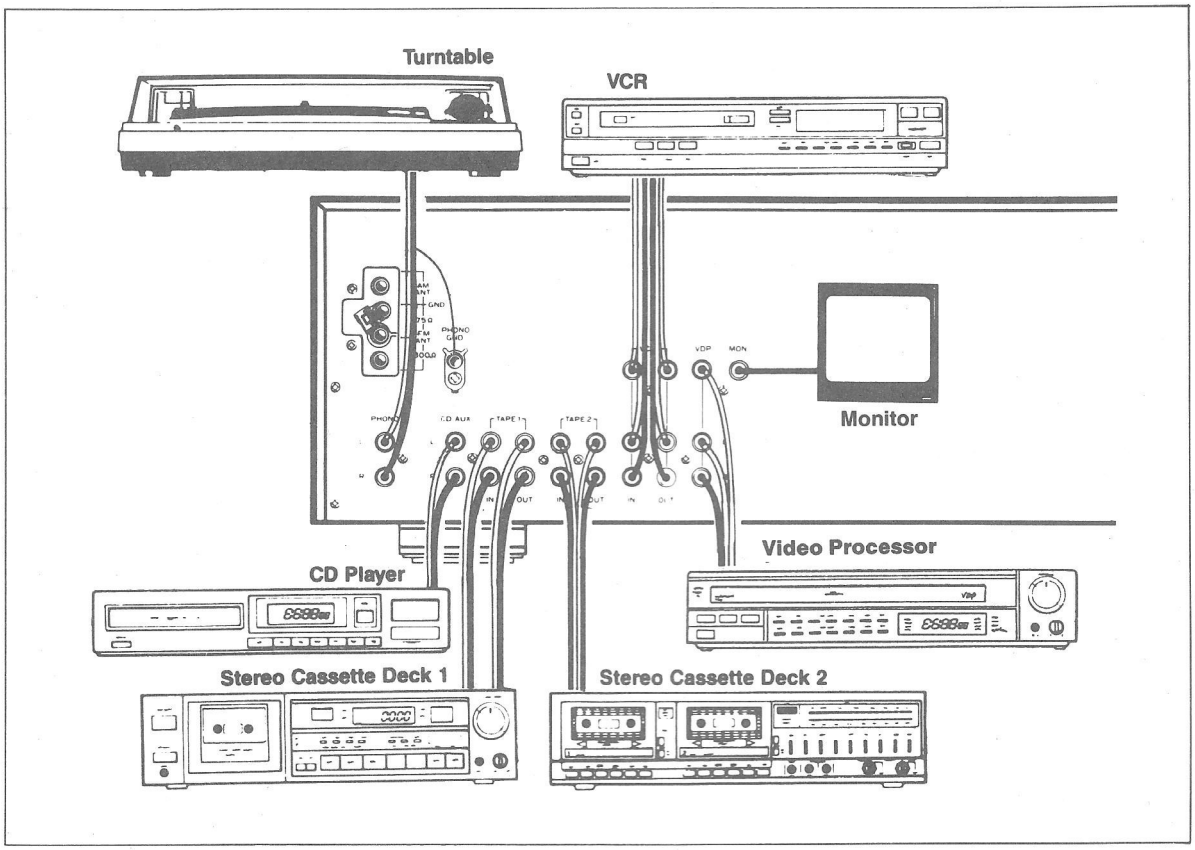
Where you place your speakers can make a noticeable difference in your system's sound. The following guidelines will help you choose speaker locations, but after you learn to use the receiver, you might want to try different locations for your speakers.

Bass response depends on speaker location. For stronger bass, place the speakers in the corners of the room. If you want even more bass, place the speakers directly on the floor. If the bass is too strong, move the speakers slightly away from the corners of the room, or raise the speakers 6 to 18 inches off the floor. You can buy speaker stands at your local Radio Shack store.



Speakers should be about the same distance apart as the normal listening point is from the point halfway between the speakers. If you place the speakers too close together, you reduce the stereo separation. If you place them too far apart, you reduce the bass effect and create a *hole* in the middle of the sound.

Most speakers have a tweeter dispersion angle of about 60 degrees. Ideally, your listening position should be in the overlap area of the tweeter dispersion. You can angle the speakers toward you for better stereo effect.



CONNECTING PROGRAM SOURCES

You can connect up to seven external program sources to the receiver. The drawing above shows connections for a typical system.

Be sure you use shielded cables with phono connectors for all audio connections.

Connecting a Turntable

Connect only a turntable that uses a magnetic cartridge. Connect the turntable to the receiver's **PHONO** jacks. Then, connect the turntable's ground wire to the **PHONO GND** terminal.

Connecting One or Two Cassette Decks

You can connect one or two cassette decks to the receiver. If you connect one cassette deck to the receiver, connect the cassette deck's output jacks to the receiver's **TAPE 1 IN** jacks. Connect the receiver's **TAPE 1 OUT** jacks to the cassette deck's input jacks.

If you connect a second cassette deck to the receiver, follow this same procedure using the **TAPE 2 IN** and **OUT** jacks.

Connecting a Video Monitor

You can connect a video monitor to the receiver to monitor any video program source you connect to the receiver's **VCR 1, VCR 2,** or **VDP** input jacks. Connect the receiver's **MON** output jack to the monitor's video input.

Connecting a CD Player

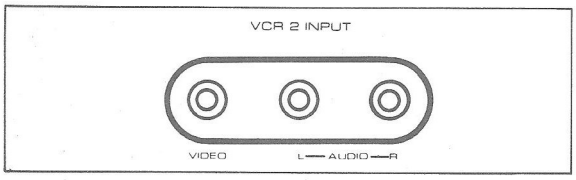
To connect a CD player to the receiver, connect the CD player's left and right outputs to the receiver's **L** and **R CD/AUX** jacks.

Connecting Video Sources

You can connect one or two VCRs and a video processor to the receiver. Connect each source's audio outputs to the receiver's corresponding **AUDIO IN** jacks **(VCR 1, VCR 2,** or **VDP).** Then connect each source's video outputs to the receiver's corresponding **VIDEO IN** jacks.

FRONT-PANEL VIDEO JACKS

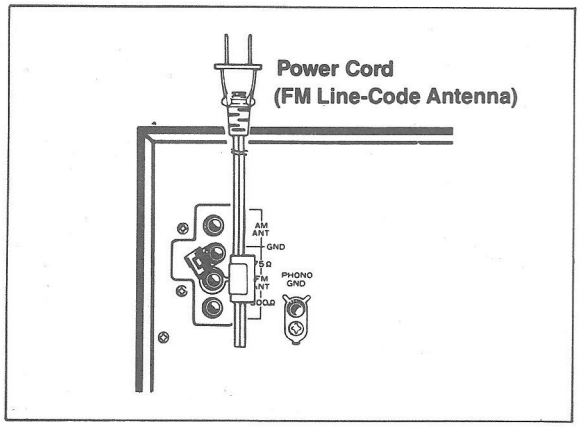
For convenient playback or recording, you can quickly connect a VCR, camcorder, or other audio/video device to the receiver's **VCR 2 INPUT** jacks on the receiver's front panel.



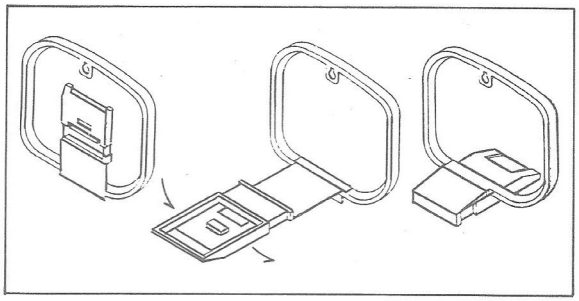
Note: If you do not connect an audio/video device to the receiver's **VCR 1, VCR 2,** or **VDP** audio input jacks, you can use these jacks for an audio-only program source that has standard line outputs. The labeling **VCR 1, VCR 2,** and **VDP** only indicates recommended program sources and helps you associate the jacks with the selector buttons on the front panel.

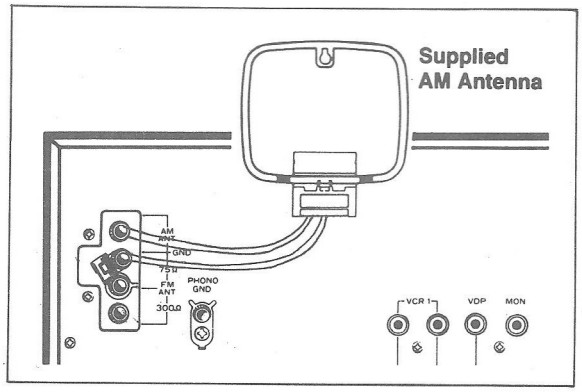
CONNECTING ANTENNAS

In many cities, the AM loop antenna and FM line-cord antenna provide adequate reception. However, for the best radio reception in any area, use an outdoor antenna. Your local Radio Shack store sells a wide selection of outdoor antennas.

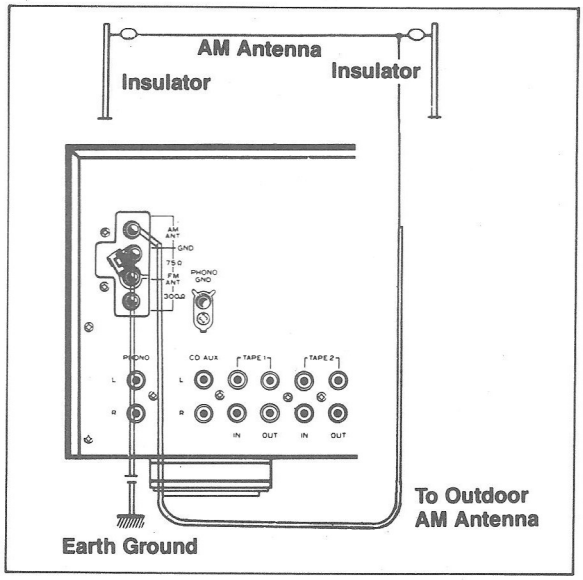


AM Antennas — Assemble the antenna's base by swinging the base in the direction of the arrow in the following diagram and inserting the antenna's bottom tabs into the base's slot. Then, attach the antenna wires to the **AM ANT** terminals (top two terminals).





If the receiver is in a rack or on a shelf and there is no room for the AM loop antenna, hang the antenna as close to the receiver as possible. Or, you can use an outdoor antenna.

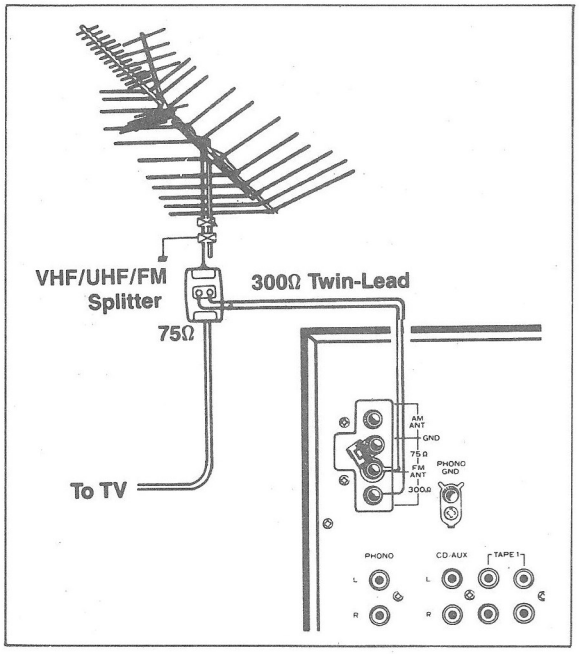


If the wire between the AM loop antenna and receiver is too short, you can add extra wire. Extra antenna wire is available at your local Radio Shack store. You can also use Radio Shack's shortwave antenna kit, which makes an excellent outdoor AM antenna.

Connect the AM antenna wire to the receiver's **AM ANT** terminal. Use a separate piece of wire to connect the **AM ANT GND** terminal to an earth ground such as a metal cold-water pipe.

FM Antennas — We connected the FM line-cord antenna to the receiver at the factory. It uses the AC power lines to receive FM signals.

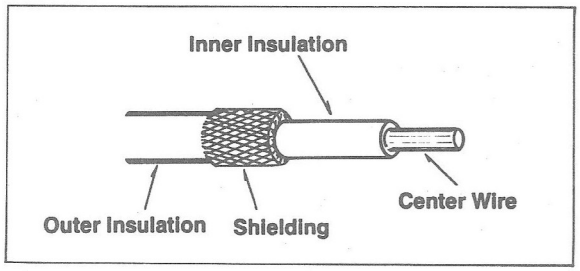
You can also use a rabbit-ear TV antenna (indoor use only) or a VHF TV antenna for FM reception. To connect the TV antenna to the receiver, you need a **VHF/UHF/FM** splitter (not included). Radio Shack stores carry a full line of quality outdoor antennas and antenna connection accessories.



Note: It is best to use 75Ω coaxial cable to connect an outdoor antenna to the receiver.

To connect an outdoor antenna to the receiver, follow these steps:

1. Disconnect the FM line-cord antenna from the receiver's **FM ANT 300Ω** terminal.
2. If the antenna wire is 75-ohm coaxial cable, follow this procedure to connect the cable to the receiver:
   a. With a stripping tool, remove about 1 inch of the cable's outer insulation to expose the cable's shielding. Then, fold back the shielding from the inner insulation.



   b. Strip off about ½ inch of the inner insulation around the center wire.
   c. Pull the shielding back over the inner insulation and insert both the shielding and wire through the metal clamp connected to the **FM ANT GND** terminal. Then, connect the center wire to the receiver's **FM ANT 75Ω** terminal and secure the shielding with the **GND** terminal's metal clamp.

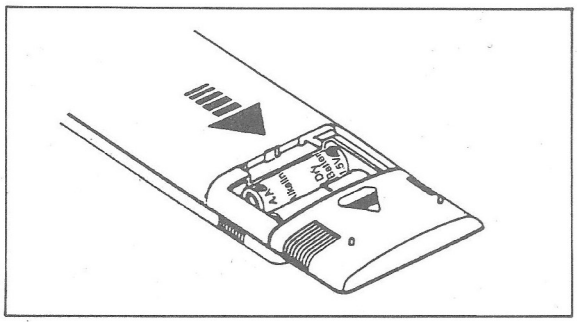
   Caution: The cable's shielding should only touch the **GND** terminal.
3. If the antenna wire is 300Ω twin-lead cable, connect it to the receiver's **FM ANT 300Ω** terminals (bottom two terminals).

INSTALLING THE REMOTE CONTROL'S BATTERIES

The remote control uses two AA batteries (not included). For the longest battery life, we recommend Radio Shack's alkaline batteries (Cat. No. 23-552).

To install the remote control's batteries, follow these steps:

1. Remove the battery compartment cover by pressing the cover in the direction of the arrow.
2. Insert the batteries according to the polarity symbols (+ and –) marked in the battery compartment.
3. Replace the compartment cover.

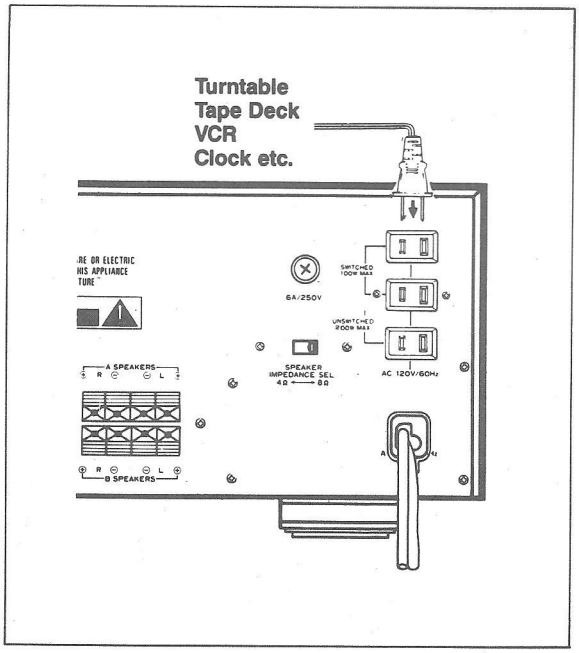


USING THE AC POWER OUTLETS

Your receiver has three AC power outlets that you can use to power other electronic devices such as a turntable, cassette deck, VCR, clock, and so on.

The two **SWITCHED** outlets turn on and off with the receiver and provide a maximum output of 100 watts each.

The **UNSWITCHED** outlet provides continuous power as long as the receiver is connected to an AC outlet. This outlet provides a maximum output of 200 watts.



SETTING THE SPEAKER IMPEDANCE SELECTOR

Set the **SPEAKER IMPEDANCE SEL** switch to match the impedance of the speakers (4Ω or 8Ω).

Cautions:

- Turn off the receiver's power before you change the switch's position. Otherwise, you might damage the receiver and speakers.
- If you connect two pairs of speakers, be sure each speaker has an impedance of at least 8 ohms. Otherwise, you could damage your speakers or receiver.

Set the **SPEAKER IMPEDANCE SEL** switch as follows:

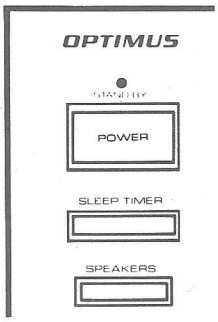
- If you use one pair of speakers (A or B) with an impedance of 4-6 ohms, set the **SPEAKER IMPEDANCE SEL** switch to 4Ω.
- If you use one pair of speakers (A or B) with an impedance of 8 ohms or more, set the switch to 8Ω.
- If you use two pairs of speakers (A and B) with an impedance of 8 ohms or more, set the switch to 4Ω.

OPERATION

Before you plug in the receiver's power cord, double-check all connections.

1. Plug the receiver's power cord into a standard AC outlet. The **STAND BY** indicator lights.

2. Press **POWER**. The **STAND BY** indicator turns off and the receiver's display and **VOLUME** control indicator light. **PROTECTION** appears in the center of the display for about 5 seconds.



TURNING SPEAKERS ON AND OFF

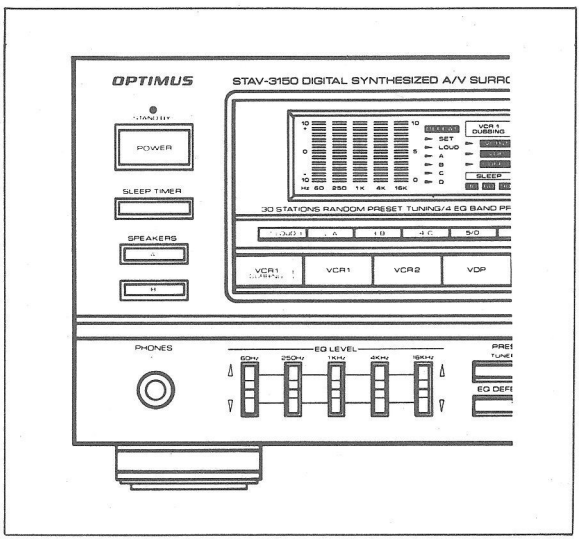
The speaker buttons — **SPEAKERS A** and **B** — let you select various speaker combinations.

Caution: Before you turn on the A or B speakers, turn **VOLUME** to 0. (See "Setting the Volume.")

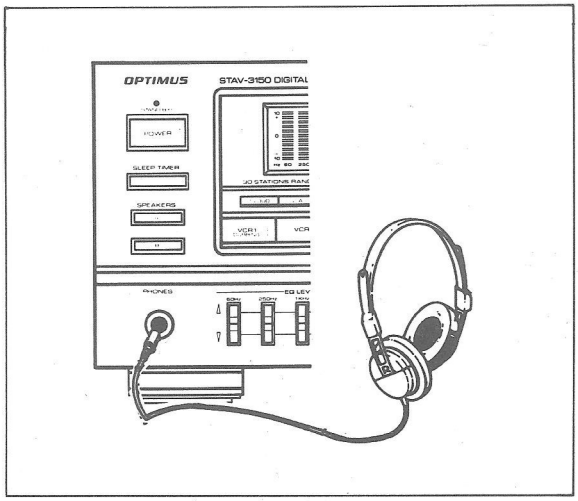
If you connect speakers only to the A or B terminals, press in A or B to turn on those speakers for a two-speaker stereo effect.

If you connect speakers to both A and B terminals, do any of the following:

- Press in **A** or **B** to turn on either pair of speakers for a two-speaker stereo effect.
- Press in **A** and **B** to turn on both pairs of speakers for a four-speaker stereo effect.
- Press **A** and **B** to the *out* position to silence all speakers and listen privately with headphones.



USING HEADPHONES



Warnings:

- To prevent possible ear injury and hearing loss, turn **VOLUME** to 0 before you put on the headphones and before you change the signal source. After you put on the headphones or change the signal source, adjust **VOLUME** for a comfortable listening level.
- Do not listen to the receiver at extremely high volume levels, especially when listening through headphones. Extended high-volume listening can cause permanent hearing loss.

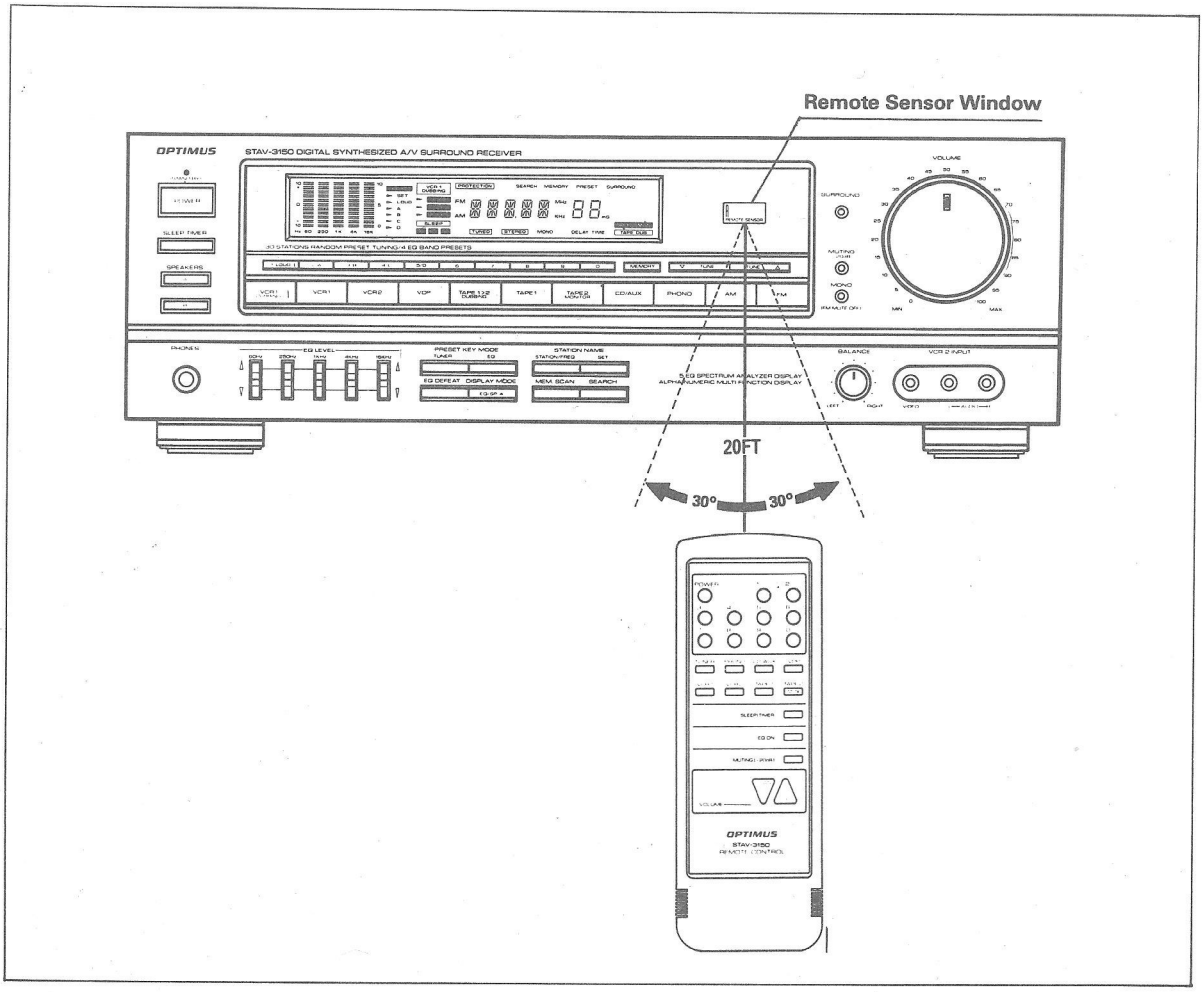
To listen through headphones, insert the 1/4-inch plug of a pair of low-impedance stereo headphones (not supplied) into the receiver's front panel **PHONES** jack.

For private listening, press both **SPEAKERS** buttons to the *out* position.

USING THE REMOTE CONTROL

Most of the buttons on the remote control are identical in function to some of the buttons on the receiver's front panel. Use these buttons exactly as you use the corresponding buttons on the receiver. (Using memory tuning with the remote control is slightly different. See "Memory Tuning" under "Tuning to the Radio.")

The remote control is effective up to a distance of about 20 feet, and within a 30-degree angle on either side of the receiver. Point the control at the receiver's **REMOTE SENSOR** window and press the desired button(s). If remote operation becomes erratic or stops completely, install two fresh AA alkaline batteries. See "Installing the Remote Control's Batteries."



SELECTING A PROGRAM SOURCE

You can select the built-in AM or FM radio or any external program source that you connect to the receiver by pressing the corresponding program source button — **VCR 1, VCR 2, VDP, TAPE 1, TAPE 2 MONITOR, CD/AUX, PHONO, AM,** or **FM.** The display shows the source you select.

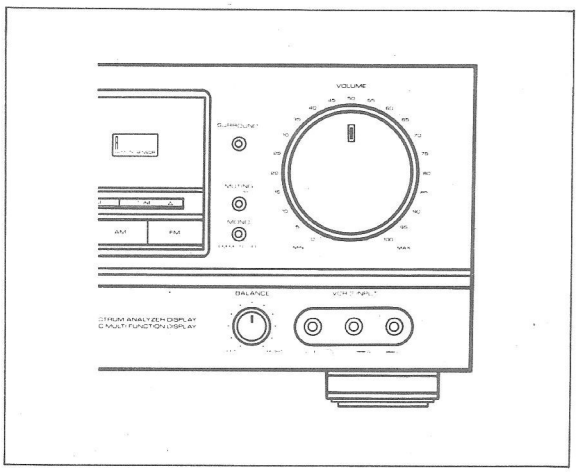
Caution: To prevent accidental overload, turn **VOLUME** to 0 before you change program sources. (See "Setting the Volume.")

Note: Be sure to read the instructions for all of your system's components.

SETTING THE VOLUME

The **VOLUME** control is labeled with numbers so that you can reference a number for a specific volume level. Turn **VOLUME** clockwise to increase the volume and counterclockwise to decrease the volume.

Note: When you decrease or increase the volume with the remote control, the volume control moves counterclockwise or clockwise, respectively.

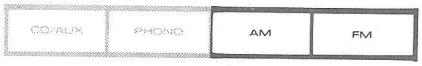
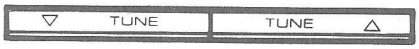
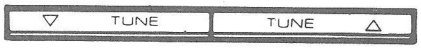


TUNING THE RADIO

Your receiver offers three types of electronic tuning — manual, search, and memory.

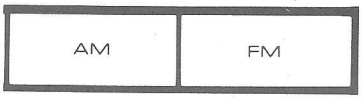
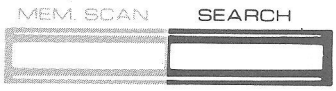
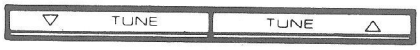
Manual Tuning

To tune to a station manually, follow these steps:

1. Press **AM** or **FM**.	
2. Quickly tap **TUNE** ▼ (down) or ▲ (up) to move to the next lower or higher frequency.	
3. Press and hold down **TUNE** ▼ or ▲ to manually search down or up the selected band. Release the button to stop searching.	

Search Tuning

Use search tuning to quickly find strong AM or FM stations.

1. Press **AM** or **FM**.	
2. Press **SEARCH** to turn on the search function. **SEARCH** appears on the display.	
3. Press **TUNE** ▼ or ▲. The receiver searches down or up the selected band until it finds a strong radio frequency. **TUNED**, **STEREO**, or both appear on the display.	

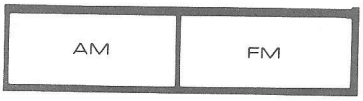
Manual and Search Tuning Hints

- If you want to find a weak FM station, press **MONO (FM MUTE OFF)** so that **MONO** appears on the display. The FM muting function turns off. **TUNED** appears on the display when you tune to a strong frequency. See "Using the MONO/FM MUTE OFF Button."
- The receiver displays FM frequencies in 0.2 megahertz (MHz) intervals and AM frequencies in 10 kilohertz (kHz) intervals.
- If you press **TUNE** ▲ when the display is at the top of the frequency range (AM-1710 kHz, FM-107.9 MHz), the display returns to the bottom of the range (AM-520 kHz, FM-87.5 MHz). If you press **TUNE** ▼ when the display is at the bottom of the frequency range, the display returns to the top of the range.
- When you select the **AM** or **FM** radio band, the receiver displays the last frequency selected on that band.

Memory Tuning

The memory tuning feature lets you instantly tune to a frequency you stored in one of 30 memory locations. Each location can hold an AM or FM frequency.

To store a frequency, follow these steps:

1. Press **AM** or **FM**.	
2. Use manual or search tuning to select the frequency you want to store.	
3. Press **MEMORY**. **MEMORY** flashes on the display for about 5 seconds.	
4. While **MEMORY** flashes, select the desired memory location (01-30) by pressing the appropriate memory preset buttons. This stores the frequency.	

Notes:

- For single-digit memory locations, press 0 before the digit (01, 02, 03, and so on).
- When you store a frequency in a memory that already contains a frequency, you replace the previous frequency.
- If the receiver is disconnected from AC power for more than three days, it loses all the stored frequencies.

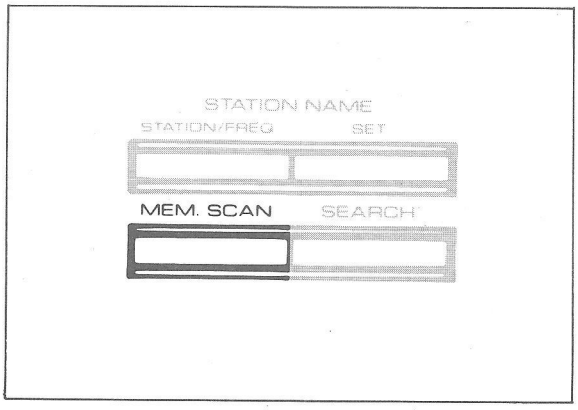
Tuning to a Stored Frequency

To tune to a stored frequency, press the desired memory location number using the memory preset buttons. If you use the remote control to tune to a frequency, press **TUNER** first, and then press the desired memory location number.

SCANNING MEMORY STATIONS

Press **MEM SCAN** to scan the frequencies you stored in memory. The receiver stops at each memory location that contains a frequency, for about 5 seconds, so that you can hear a station before scanning resumes.

To stop scanning, press **MEM SCAN** or any of the memory preset buttons.



USING THE MONO/FM MUTE OFF BUTTON

In the FM mode, you can improve the reception for weak stations by pressing **MONO/FM MUTE OFF** so that **MONO** appears on the display. The receiver reduces the noise, but the sound is in monaural instead of stereo. This button also turns off the FM muting function, so you will hear a hissing noise as you tune between stations.

To receive stereo FM stations, press **MONO/FM MUTE OFF** so that **MONO** disappears from the display. **STEREO** lights when the receiver tunes to a stereo FM frequency.

Note: If you play other program sources while **MONO** appears on the display, the audio output is monaural.

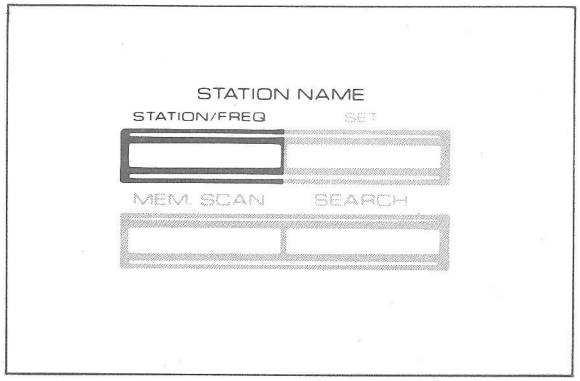
SETTING STATION NAMES

The receiver lets you store the names of the stations whose frequencies you store in the receiver's memory. When you select a preset radio station, you can have either the station's name or frequency appear on the display.

Storing a Station Name

To store the name of a radio station in a preset memory location, follow these steps.

1. Tune to a radio station.
2. Press **STATION/FREQ**. Five bars appear on the display.



3. Press **SET**. A bar flashes.
4. Press **TUNE** ▼ or ▲ to select the correct letter or number.
5. Repeat Steps 3 and 4 to select the other letters or numbers in the station name.

Note: Be sure to repeat Steps 3 and 4 until the last bar either disappears or contains a letter or number.

6. After you enter the station name, press **MEMORY** and the desired preset memory buttons.

Displaying a Station's Name

To display a station's name, press **STATION/FREQ** to change to the station-name mode. Then, press the appropriate preset memory buttons. To display the station's frequency again, press **STATION/FREQ** to change back to the frequency mode.

PLAYING/RECORDING TAPES

You can connect two cassette decks to the receiver for several playback and recording options.

Using the TAPE 1 Button

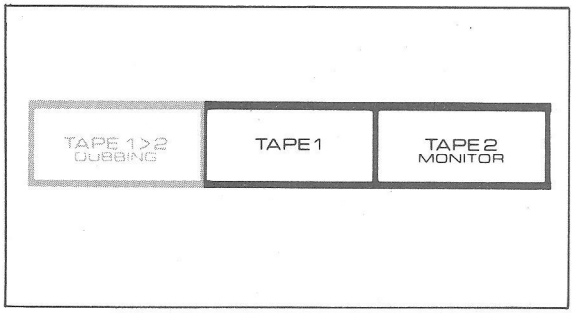
Press **TAPE 1**. **TAPE 1** appears on the display. You can hear the playback from the cassette deck you connect to the receiver's **TAPE 1** jacks.

Using the TAPE 2 MONITOR Button

You can monitor playback or recording from the cassette deck you connect to the receiver's **TAPE 2** jacks.

Press **TAPE 2 MONITOR**. **TAPE 2 MON** appears on the display. When you monitor a tape, the receiver displays the name of the last non-tape program source you selected. That source's signal is sent to the **TAPE 2 OUT** jacks in case you want to record it.

Note: If you press **TAPE 1** or **TAPE 2 MONITOR** when the cassette deck is neither playing nor recording, the receiver mutes the current non-tape audio source. To hear the audio source, press **TAPE 2 MONITOR** so that **TAPE 2 MON** disappears from the display.



Recording a Program Source

If you are not recording a tape, the receiver sends the program source you select — **VCR 1, VCR 2, VDP, CD/AUX, PHONO, AM,** or **FM** — to both pairs of **TAPE OUT** jacks. You can record the program source on either cassette deck.

If you press **TAPE 2 MONITOR** when recording a program source, you hear the source's signal as you record it. With cassette decks that have a three-head monitor function, you hear the program source's signal immediately after you record it onto tape. (Be sure to read the owner's manual for your cassette decks.)

Simultaneous Recording and Playback

You can record a non-tape program source on one cassette deck while you listen to a cassette tape on another cassette deck.

Press **TAPE 1** or **TAPE 2 MONITOR** (so that **TAPE 2 MON** appears) to select the cassette deck you want to use for tape playback. Start playback at any time. Then, begin recording on the other cassette deck during playback.

Dubbing a Cassette Tape

You can copy or dub a cassette, for your personal use, from one cassette deck to another.

The cassette deck you connect to the receiver's **TAPE 1** jacks is the playback deck and plays the original cassette. The cassette deck you connect to the receiver's **TAPE 2** jacks is the recording deck and dubs the original cassette.

Press in **TAPE DUBBING**. Then, begin recording on the recording deck and begin playback on the playback deck.

If you want to monitor the cassette deck during dubbing, press **TAPE 2 MONITOR** so that **TAPE 2 MON** appears on the display. See "Using the TAPE 2 MONITOR Button

PLAYING/RECORDING VIDEO TAPES

You can connect three audio/video (A/V) devices and a video monitor to the receiver. This lets you dub video cassette tapes from one VCR to another and monitor the dubbing process.

Playing a Video Cassette Tape

Load a pre-recorded video cassette into a **VCR** you connected to the receiver. Press the button (**VCR 1, VCR 2,** or **VDP**) that corresponds to the jacks you used for the connection. Then, start playback using the VCR's controls. If you connected a monitor to the receiver, the picture appears on the monitor's screen.

Dubbing a Video Cassette Tape

Your receiver can dub a video cassette tape from one VCR to another. The VCR you connect to the receiver's **VCR 2** or **VDP** jacks is the playback VCR and the VCR you connect to the receiver's **VCR 1** jacks is the recording VCR.

Follow these steps to dub a video cassette tape:

1. Connect the playback VCR's audio/video output jacks to the receiver's **VCR 2** or **VDP IN** jacks.
2. Connect the recording VCR's audio/video output jacks to the receiver's **VCR 1 IN** jacks. Then, connect the receiver's **VCR 1 OUT** jacks to the recording VCR's audio/video input jacks.
3. Press **VCR 1 DUBBING** so that the arrow on the display points to the correct playback source indicator.
4. Begin recording on the recording VCR.
5. Begin playback on the playback VCR.

Changing the Audio on a Video Cassette Tape

Some Hi-Fi VCRs and standard VCRs have special audio recording systems that let you change the audio of a video cassette tape without changing the video. Be sure your VCR has this feature before you try this procedure.

1. Connect the recording VCR to the receiver's **VCR 1 IN** and **OUT** jacks.
2. Press the desired audio program source button — **TAPE 1, TAPE 2, CD/AUX, PHONO, AM,** or **FM.**
3. Press **VCR 1 DUBBING** so that the arrow on the display points to **VCR 2** or **VDP.**
4. Start recording on the recording VCR, and then start the audio program source.

Note: When you use this function, you record over any previously recorded audio. For further instructions on audio editing, refer to your VCR's owner's manual.

ADDITIONAL FEATURES

GRAPHIC EQUALIZER

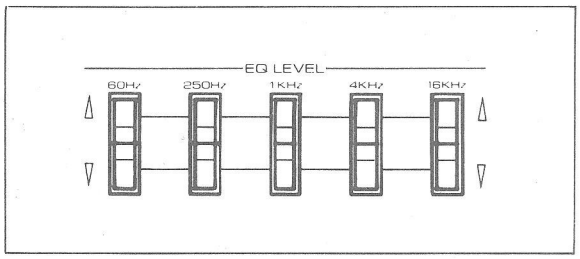
Your receiver includes a high-performance five-band graphic equalizer equipped with four memory positions that let you store your own equalizer patterns.

Equalizer Level

The receiver's equalizer level buttons let you adjust the level of each frequency (60Hz, 250Hz, 1KHz, 4KHz, and 16KHz) up and down within a range of ± 10dB.

To store your own equalizer patterns in memory, follow these steps.

1. Press **EQ** under **PRESET KEY MODE**.
2. Press the equalizer level buttons (▼ and ▲) to set the level for each frequency.



3. Press **MEMORY**, and within 5 seconds, press any of the equalizer preset buttons (A to D).
4. To recall a preset equalizer pattern, press an equalizer preset button. The selected equalizer pattern appears on the display.

To bypass the equalizer, press **EQ DEFEAT**. **DEFEAT** appears on the display.

SLEEP TIMER

You can set the receiver to automatically turn off after 30, 60, or 90 minutes. To start the sleep timer, press **SLEEP TIMER** until the desired turn-off time (30, 60, or 90) appears on the display.

SURROUND BUTTON

Your receiver's surround effect feature provides a fuller, more spacious sound for your stereo programs. Press **SURROUND** to turn on the surround feature. **SURROUND** appears on the display.

To turn off the surround feature, press **SURROUND** so that **SURROUND** disappears from the display.

LOUD BUTTON

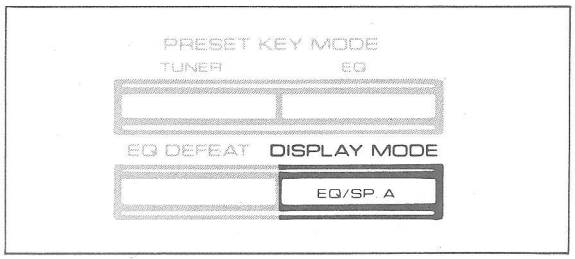
The **LOUD** button lets you select a factory-set equalizer pattern to improve the sound by boosting certain frequencies when you listen at low volume levels. Press **EQ** under **PRESET KEY MODE**. Then, press **1/LOUD**. The equalizer setting appears on the display.

DISPLAY MODE BUTTON

The **DISPLAY MODE** button lets you select either an audio spectrum display or a steady equalizer level display.

The equalizer (EQ) mode is useful when you adjust and confirm the equalizer settings.

The spectrum analyzer (SP A) mode shows the spectrum of the combined left and right channels for all five frequencies.



MUTING BUTTON

Press **MUTING** to decrease the speakers' volume level by 20 dB. The **VOLUME** control indicator flashes while the muting function is on.

To turn off the muting function, press **MUTING** so that the **VOLUME** control indicator lights steadily.

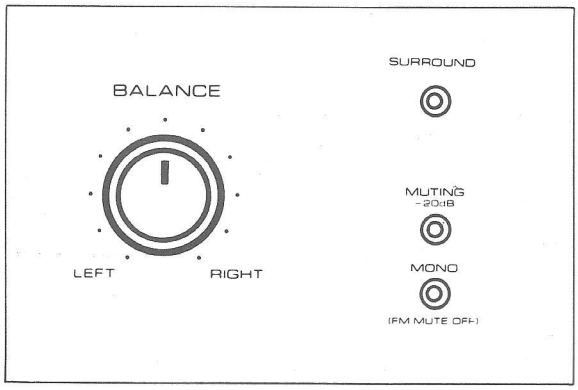
BALANCE CONTROL

The **BALANCE** control lets you adjust the sound balance between the left and right speakers for speaker pairs A and B. If you properly position the speakers and your listening area is centered between the speakers, the center setting of the control is usually best.

For an unusual speaker placement, adjust BALANCE as follows:

1. Listen to any program source.
2. Press **MONO/FM MUTE OFF** so that **MONO** appears on the display. The sound is monaural instead of stereo, so each speaker delivers the same output.

3. Adjust the **BALANCE** control until the sound seems to be coming from a point halfway between the two speakers in either pair.
4. Press **MONO/FM MUTE OFF** so that **MONO** disappears from the display (if desired).



PROTECTION CIRCUITS

Your receiver has two special protection circuits and a protection indicator.

The thermal overload protection circuit automatically turns off the receiver's amplifier if it approaches overheating.

The overdrive protection circuit automatically turns off the amplifier if it is close to delivering too much power.

If either of these situations occurs, **PROTECTION** appears on the display.

If the amplifier turns off, check to be sure the ventilation holes on top of the receiver are clear of obstructions, and check the speaker connections and speaker impedance. Remember, do not use both pairs of speakers at the same time if either pair has an impedance of less than 8 ohms.

Caution: To prevent the protection circuits from being reactivated after the amplifier turns back on, reduce the volume by half.

If one of the protection circuits turns off the receiver's amplifier, it should turn back on within 30 minutes.

REPLACING THE FUSE

Your receiver has a fuse that helps protect the receiver from power surges and short circuits. If the receiver does not work, check the fuse to see if it is blown.

To check and replace the fuse, follow these steps:

1. Use a Phillips screwdriver to unscrew the fuse compartment cap on the back of the receiver.
2. Pull out the fuse compartment cap and remove the old fuse.
3. If the fuse's center wire is broken or the glass covering is a light brown color, replace the fuse with an identical 6-amp, 250-volt fuse (available at your local Radio Shack store).

   Caution: Never use a fuse that has a higher rating than 6 amps/250V.
4. Replace the fuse compartment cap.

If the fuse is not blown, it is possible that one of the protection circuits has been activated. (See "Protection Circuits.")

CARE AND MAINTENANCE

CARING FOR THE STAV-3150

Your STAV-3150 Digital Synthesized A/V Stereo Receiver is an example of superior design and craftsmanship. The following suggestions will help you care for the receiver so that you can enjoy it for years.

Keep the receiver dry. If it does get wet, wipe it dry immediately. Liquids might contain minerals that can corrode the electronic circuits.

Handle the receiver gently and carefully. Dropping it can damage circuit boards and can cause the receiver to work improperly.

Use and store the receiver only in normal-temperature environments. Temperature extremes can shorten the life of electronic devices and distort or melt plastic parts.

Keep the receiver away from dust and dirt, which can cause premature wear of parts.

Wipe the receiver with a dampened cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the receiver.

Modifying or tampering with the receiver's internal components can cause a malfunction and might invalidate the receiver's warranty and void your FCC authorization to operate it. If your receiver is not performing as it should, take it to your local Radio Shack store. Our personnel can assist you and arrange for service if needed.

THE FCC WANTS YOU TO KNOW

Your receiver might cause interference on other radio/TV devices even when it is operating properly. To determine whether your receiver is causing the interference, turn off your receiver. If the interference goes away, your receiver is causing the interference. Try to eliminate the interference by:

- Moving your receiver away from the other device
- Connecting your receiver to an outlet that is on a different electrical circuit from the other device
- Contacting your local Radio Shack store for help

If you cannot eliminate the interference, the FCC requires that you stop using your receiver.

PROBLEM-SOLVING

If the receiver is not working as it should, the following suggestions might help you. If you follow the suggestions in this chart and the receiver still does not work properly, contact your local Radio Shack store where our personnel will assist you and arrange for service if needed.

Problem	Cause/Remedy
No power (All indicators are off)	• Press **POWER**. • Be sure the power cord is plugged in. • Try a different AC outlet. • Check the fuse.
No sound	• If you are listening to an audio source other than the tape deck, be sure the **TAPE 2 MONITOR** button is out. If necessary, press **TAPE 2 MONITOR** so that the button is out. • Check the volume level. • Check the **SPEAKERS** buttons. If you connected only one pair of speakers, press only the corresponding **SPEAKERS** button. • Check the audio source connections. Be sure you have selected the correct audio source. • Check the speaker connections. • If the **PROTECTION** indicator comes on, a built-in protection circuit has turned off the amplifier. Press **POWER** to turn off the receiver. Then, check the following: — Be sure the speakers are correctly connected. Be sure there are no stray wire strands touching other wire strands or metal objects. — Be sure the receiver is adequately ventilated. — Be sure the speakers have an impedance of 8 to 16 ohms.
Low-pitched hum on AM	• Move the power cord away from the AM antenna connection wires.
Unusual beat sound on AM	• Turn off the TV or move the receiver away from the TV.

SPECIFICATIONS

AMPLIFIER

100 Watts Per Channel, Minimum RMS into 8 ohms from 20-20,000 Hz, with no more than 0.05% Total Harmonic Distortion.

Frequency Response (1 Watt, AUX in)	20-20,000 Hz
IM Distortion (80 Watts, 60/7,000 Hz)	0.04%
Signal-to-Noise Ratio	82 dB (PHONO) 94 dB (AUX)
Input Sensitivity	
Phono	2.5 mV
CD/AUX	210 mV
VCR/VDP & TAPE	150 mV
Phono Equalization	RIAA +/– 2 dB
Total Harmonic Distortion (80 Watts)	
20 Hz	0.01%
1 kHz	0.008%
20 kHz	0.025%

AM TUNER

Tuning Range	520-1710 kHz
Sensitivity (20 dB S/N)	350 μV/m
Image Rejection	37 dB
IF Rejection	60 dB
Total Harmonic Distortion (5 mV/m)	0.8%
Signal-to-Noise Ratio (5 mV/m)	45 dB
RF Interference Rejection	Rated Excellent

FM TUNER

Tuning Range	87.5~107.9 MHz
IHF Sensitivity (3% THD)	1.2 μV (9.8 dBf)
Limiting Sensitivity (–3 dB)	1.0 μV (6.8 dBf)
Signal-to-Noise Ratio	77 dB
Capture Ratio	1.5 dB
Total Harmonic Distortion (1 mV)	
Mono	0.07%
Stereo	0.14%
Image Rejection	> 80 dB
IF Rejection	> 90 dB
Selectivity	> 60 dB
Channel Separation at 1 KHz	55 dB

GENERAL

Power Requirements	120V AC, 60 Hz, 180 Watts
Dimensions	5 3/8×17 3/8×17 Inches (HWD)
Weight (Net)	25 lbs